redcare

5G GSM STU User/ Installation Manual

This manual contains information on the Redcare **5G GSM STU**. It contains more detailed information than that provided in the Quick start user guide provided with the GSM STU. The following products are covered:

- **Redcare 5G GSM STU**

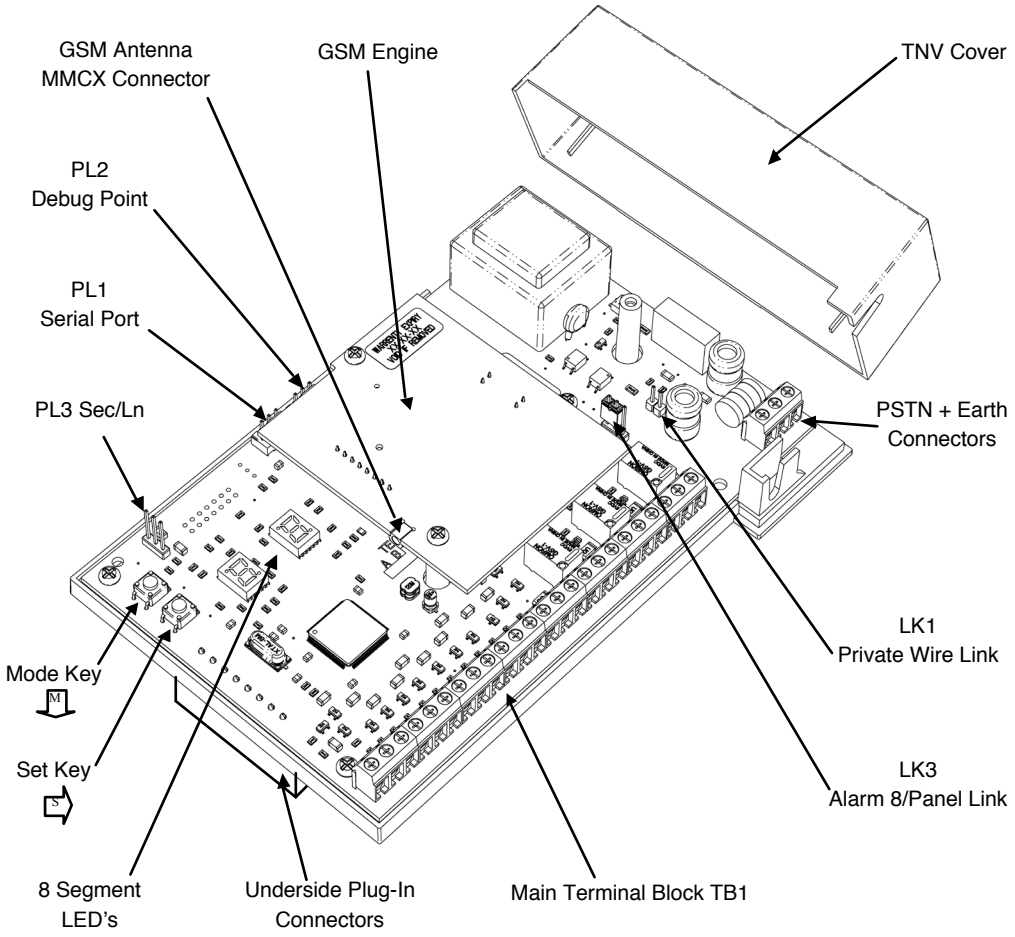


Fig 1. 5G GSM STU

Description

The 5th Generation Subscribers Terminal Unit (5G STU) is a communicator for signalling alarm signals between a protected premises and an Alarm receiving centre (ARC). The 5G STU uses the extremely reliable BT redcare network to convey the messages over a Redcare enabled BT analogue PSTN line. A secondary communications path is provided using SMS signalling over the GSM network. Even if an intruder cuts the line and jams the radio signals an alarm message will still rapidly be sent to the ARC.

The 5G GSM STU is fully compatible with BT's 21CN network upgrade program and connects to any BT redcare enabled telephone line.

The 5G STU is fully ADSL compliant and does not require an additional ADSL microfilter.

Pre-installation requirements

Before a 5G STU installation can commence, a BT RedCARE Service Order must be submitted to BT RedCARE by the Alarm Receiving Centre. This ensures that the appropriate exchange connections have been made and a BT RedCARE block terminal 92A, where required, has been provided at the customer's premises.

It is strongly recommended that a site survey is carried out to check for suitable GSM signal strength at the proposed GSM STU location. The 5G GSM STU uses SMS messaging across the O2 GSM mobile phone network, and for reliable operation a signal strength of 12 or greater (-90dB) should be available at the location of STU installation.

Safety statement

The circuit board area, under the cover, is classed as a Telecommunication Network Voltage (TNV-3) circuit. All other interconnection points are classed as Safety Extra-Low Voltage (SELV) circuits. It is only necessary for this cover to be removed during installation of the PSTN wiring. A protective earth connection is required to the terminal block TB5.

The 5G STU is designed for host-independent fitment.

The host alarm panel or box into which the 5G GSM STU is installed must provide a R**ESTRICTED ACCESS LOCATION** in accordance with the requirements of BS EN 60950.

Suitable user protection to ensure compliance with BS EN 60950 should be present on the host or its fitted equipment. A hazardous voltage is one which exceeds 42.4V peak AC. or 60V DC. If you have any doubt, seek advice from a competent engineer before installing this or other adapters into the host equipment.

Static sensitive devices

Static electricity is present in our everyday lives. A static charge is generated by friction, and whenever two dissimilar materials are separated. The imbalance of electrons causes a potential difference of many hundreds of volts. On discharge, a large current flows for a short time.

Many electronic components can be damaged by such static charges. Component failure may not be immediate or catastrophic. Electro-Static Discharge (ESD) can cause hidden damage to components, which will affect their reliability.

It is recommended that precautions are taken against damage due to static electricity during the installation and maintenance of the 5G GSM STU. Suitable ESD protection measures include ensuring that you are earthed (via a wrist strap and a 1M resistor) whenever you handle the unit.

5G GSM STU siting

When surveying the site please remember that the GSM STU operates in a similar way to an ordinary mobile telephone, therefore any restrictions on the use of mobile telephones in the area will also apply to the GSM STU.

Premises such as hospitals, petrol stations, airports, blasting areas etc. may operate a mobile telephone restriction in certain areas. Always ensure that the chosen site is free of any mobile telephone restrictions and advise the end user so that they are aware, should any restrictions come into force in the future.

Note: It is recommended to perform a signal strength test during a pre-installation site visit.

Determine where the GSM STU enclosure will be eventually situated.
Place an O2 mobile phone or GSM STU at the location it is to be installed, switch it on and observe the signal strength.

For reliable operation a signal strength of 12 or greater (-90dB) should be available at the location of STU installation.

If the signal strength is weak, try to find a better position for the 5G GSM STU unit. If required, a higher gain extension antenna with an extension cable is available at extra cost from BT Redcare. (Part No. 47536). https://www.btinstallershop.com/home.aspx.

Telephone line connections

Connect the 5G GSM STU to the BT RedCARE block terminal. Only one 5G STU may be connected to any one telephone line.

WARNING: the block terminal contains telecommunication network voltages.
Please note that it is important to use the correct method of connecting the STU to the BT Block Terminal 92A. The Block Terminal provides an insulation displacement connection (IDC) block for the incoming phone line. No connections, other than those made by BT, should be made to this IDC block. The STU should be connected to the screw terminals as shown. The 5G GSM STU is not polarity conscious on its line terminals.

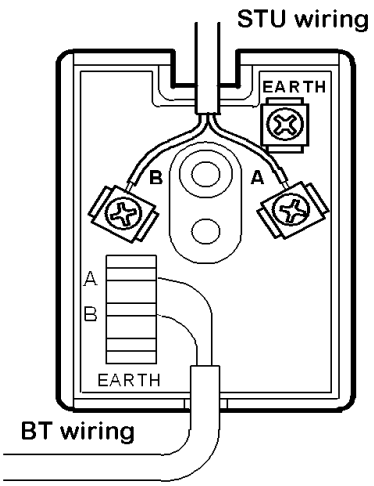


Fig 2. BT Redcare Block Terminal 92A

Power supply

The 5G GSM STU must be connected to a suitable power supply. The installer must ensure that the rating of the power supply is greater than the combined rating of the 5G STU and any other apparatus drawing power from the power supply.

The 5G GSM STU supply requirements are detailed on page 5
Note: when the 5G GSM STU is plugged on to a suitable panel the power connections must still be made to the terminals marked +12V & 0V on TB1.

REN

The Ringer Equivalence Number (REN) for the 5G STU is 1.0. As a guide to the number of apparatus that can be simultaneously connected to a line, the sum of REN values for each apparatus should not exceed 4.0. A BT provided telephone is assumed to have a REN value of 1.0 unless otherwise marked. If the 5G STU is used with an MCD, the combined REN will be 1½.

Training courses

Redcare offer a free training course for installers of the Redcare service.
For further information call General Enquiries Tel: 0800 800 828.

5G GSM STU inputs

The STU has 11 screw terminal inputs plus tamper (T) & AC fail (F) for connection to the monitored equipment such as an alarm panel. (3 inputs on the Fire STU)
(Note on GSM STU pin 8 is reserved for low signal strength, and pin 10 & 11 maybe reserved for path test alarms in BSIA mode (F7=3). The alarm inputs are triggered by changing their voltage state.

5G GSM STU plug-in option

For "Plug-in" installation, alarm pin connections are made automatically when the 5G GSM STU is plugged in to the host alarm panel. When fitting the STU, check that the signals presented by the alarm panel match those required by the STU, for the two sockets SK1 and SK2. The pins have been designated the following functions on the 5G GSM STU:

SK1	Function	SK2	Function
Pin 1	Alarm Input 1	Pin 9	Not Used
Pin 2	Alarm Input 2	Pin 10	Signal Ground
Pin 3	Alarm Input 3	Pin 11	ATS (Via STU LK3)
Pin 4	Alarm Input 4	Pin 12	Not Used
Pin 5	Alarm Input 5	Pin 13	Alarm Input 6
Pin 6	Control Output	Pin 14	Alarm Input 7
Pin 7	Comms Fail (output)	Pin 15	Line Fault (output)
Pin 8	Low battery (input)	Pin 16	Alarm Input 8 (Via STU LK3)

Note: The alarm panel cannot make use of Pin 16 (Alarm Input 8) as this is reserved for "GSM Failure" indication.
Note: when the 5G GSM STU is plugged on to a suitable panel the power connections must still be made to the terminals marked +12V & 0V on TB1.

For plug-in installations, be sure that no wires are ever connected to the terminals 1 to 8 on TB1 as this may result in damage to the alarm panel. Terminals 9,10,11,T & F can be connected if these channels are required in addition to those present on the plug-in connectors (SK1 & SK2).

Output relays

Three output relays are provided: Control, Return Path Signalling (RPS), and Line Fault. The use of any, or all, of these functions is optional. For a basic installation these outputs are not required.
Note: If an output is to be connected to a device which produces transient voltages, such as a bell, the device should be suppressed using a suitable protection diode.

Control output relay (CTRL)

This relay can be switched on or off by the alarm receiving centre (ARC) operator by sending and output ON or output OFF command to the STU through the redcare network.
The output can typically be used to remotely reset an alarm panel, or to operate other devices such as lights or door latches at the site.

Line fault output (LF)

The Line Fault Output is used to indicate, at the protected premises, that either or both the GSM and landline (PSTN or Private Wire) communication paths have failed.
The 'Line Fault' relay contacts (Normally Open, Common, Normally Closed) are available for connection on TB1. The maximum current rating of the relay contacts is 1 Amp.

For plug-in installations, Line Fault connections are made automatically when it is fitted in the host alarm panel. The host panel must be programmed to accept this function.

At default the 5G GSM STU Line Fault output is set to comply with BSIA form 175 mode of working. Other options are available as later described.

Return Path Signalling (RPS)

The RPS output is used to indicate, at the protected premises, that the opening/closing signal has been sent to, and acknowledged by, the Alarm Receiving Centre.
To use the RPS function, at least one of the alarm inputs must be designated as an opening/closing channel (usually channel 4). The RPS output will activate when an opening or closing signal is detected. It will de-activate when the opening or closing signal has been acknowledged by the Alarm Receiving Centre. It is allowable to have more than one input designated as an opening/closing channel, but each must be acknowledged to de-activate the RPS output.
The RPS relay contacts (Normally Open, Common, Normally Closed) are available for connection on terminal block TB1. To use this option, a warning device such as a piezo bleeper or external strobe light should be connected through these contacts. The maximum current rating of the relay contacts is 1 Amp

STU specifications

Pin alarm inputs

- Logic High = +2.5V to +30V
- Logic Low = -0.5V to +0.8V

Logic level outputs

- Logic High = 3.0V @ 560µA max
- Logic Low = 0.4V @ 280µA max

With respect to the 0V terminal on TB1

Power Rating

- 5G GSM 12Vdc 80mA mean 350mA peak

Environmental

- Operating ambient temperature +5°C to +40°C

Relay contacts

- 30V 1A Max

Physical

Size = 168 x 115 x 36mm

GSM aerial installation

The Aerial supplied with the 5G GSM STU is designed for mounting on the top of an alarm panel. Drill a suitable hole, (typically 11mm diameter) in the top of the box in which the GSM STU is fitted. Prevent swarf from entering the enclosure as it could cause internal short circuits.

Remove any burrs from the hole, pass the RF cable through it and place the antenna in position. It is advisable not to bond the antenna onto the box at this stage. Wait until the system has been tested, as it is difficult to remove once attached.
Try to route the RF cable away from any other wiring within the box to reduce the likelihood of interference. Carefully connect the RF cable to the GSM module on the 5G GSM STU. The connector is a micro-miniature co-axial (MMCX) screened type and is easily damaged.

Telephone line selection (LK1)

The 5G STU is supplied ready to connect to the Public Switched Telephone Network (LK1 is not fitted). If the 5G STU is to be connected to a Private Wire (RedDIRECT) a suitable link must be fitted in the position marked LK1 under the TNV cover. For RedDIRECT PW working the 5G STU must be configured with F3 set to 1.

Note: the LK1 link provide 600 ohm line matching for PW working and is only generally used on legacy RedDIRECT circuits or for test purposes. For normal PSTN connection LK1 is NOT required.

If you have any doubts about the type of telephone line to which the STU is being connected, contact Redcare for advice.

5G STU displays

The current status of the STU is displayed on the 2 X 8 segment displays. The STU will cycle through the messages in 1 second steps.

AL = This is followed by the ALarm pins that are active (in the Alarm state). 00 if no alarms are active, or the numbers of the pins outstanding. i.e 4 = pin 4 outstanding.

SS = the GSM Signal Strength is as follows. 0-31 or 99 = undetermined.

NC = Not Commissioned. The STU has yet to receive an UP STU command from the ARC

5G STU configuration

The 5G STU is factory supplied with the most common settings for most installations, so generally the unit can be installed without the need to carry out configuration. However, if changes to the default setting are required they can be carried out as follows.

Note: The **5G STU** must be in the fully de-commissioned state to enter the configuration menu. To enter the configuration menu press and hold the **MODE** button for 5 seconds. **PP** will be displayed on the display.

The **MODE** button can be used to step cycle through the main menu as follows:
PP = Pin Polarity
OC= Message Select (Open Close)
iD = Set Hard ID number
PE= Pin Enable
F1 = Function digit 1 (Control Relay)
F2 = Function digit 2 (Line Fault Polarity)
F3 = Function digit 3 (Connection Type)
F4 = Function digit 4 (Line Monitoring Enable)
F5 = Function digit 5 (Serial Parallel)
F6 = Function digit 6 (GSM Enable)
F7 = Function digit 7 (Line Fault Relay Operation – BSIA)
LD = Load Default (Reset all variables to manufacturers default)
?? = Commit to microprocessor memory.

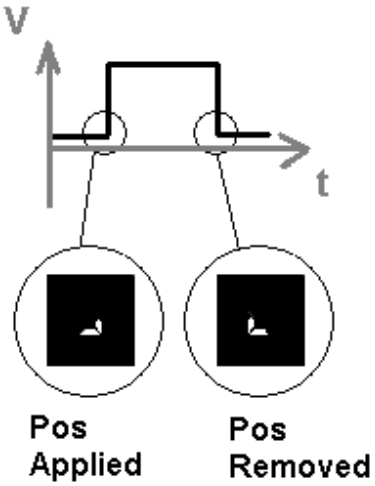
The **SET** button is used to enter the sub menu for each function.

Tip: Continually pressing the **MODE** button will always eventually return to the main menu and to the **??** exit point.
Tip: The main menu can only be exited at the **LD** or **??** prompts (see these sections for exiting configuration mode).
Tip: If the state of configuration is unknown then it can be reset to the factory default settings from the **LD** load default menu option.

PP pin polarity

Pressing **SET** at the **PP** menu option enters the pin polarity sub menu. At factory default all inputs are set to positive applied triggering. The input pin polarity can be changed by using the MODE button to step through pins 1 to 11 t & F, and using the SET button to toggle the input polarity for that pin.

The following display symbols are used to denote positive applied or positive removed triggering:



Once all pins have been configured, the **MODE** button returns to the main menu.

OC Open Close message select

Pressing set at the **OC** menu option enters the **OPEN / CLOSE** sub menu. At factory default all inputs are set to send **ALARM / RESET** messages, except pin 4 that is set to send **OPEN / CLOSE** messages
The message type for each pin can be changed by using the MODE button to step through pins 1 to 11, and using the **SET** button to toggle the message type for that pin.

The following display symbols are used to denote the pin message type:
O = Open / Close
A = Alarm reset.

Once all pins have been configured, the **MODE** button returns to the main menu

iD hard ID number

Pressing **SET** at the iD menu option enters the hard **ID** sub menu.
At factory default the unit has the last 4 digits of the serial number as its Hard ID.

Tip: The 4 digit Hard ID forms part of the secure encryption key for signalling and there is generally no need to change this number.

The 4 digit number is Hexadecimal and can be in the range 0001 to FEFF. Should a change be required the following procedure can be used. When the **Hard ID** sub menu is entered, the first 2 digits of the current **Hard ID** are displayed. A lit Dot above the digit denotes the digit that will be changed with each press of the SET button. The **MODE** button cycles to the next digit. After setting the first 2 digits, the last 2 digits are displayed again with a lit dot to denote the digit that will change with the **SET** button.

Once all 4 digits have been configured, the **MODE** button returns to the main menu.

PE pin enable

Pressing **SET** at the **PE** menu option enters the Pin Enable sub menu. At factory default the all inputs are enabled.

Tip: There is generally no requirement to disable inputs, unused inputs can simply be left disconnected.

Should a change be required the following procedure can be used. The input pins can be changed by using the **MODE** button to step through pins 1 to 11 t & F, and using the **SET** button to toggle the input to Enabled or Disabled for that pin.

The following display symbols are used to denote pin enabled or disabled.

= is enabled
_ is disabled

Once all pins have been configured, the **MODE** button returns to the main menu.

F1 Function 1 – Control Output Relay

Pressing set at the F1 menu option allows the Function 1 value to be configured. At factory default the F1 digit is set to 0. The function 1 (F1) value has the following functionality.

0 = Control output relay NOT energised at power up
1 = Control output relay energised at power up

Once the F1 value has been configured, the **MODE** button returns to the main menu.

F2 Function 2 – Line Fault relay

Presing set at the F2 menu option allows the Function 2 value to be configured.
At factory default the F2 digit is set to 1.
The function 2 (F2) value has the following functionality.

5G Classic STU

0 Line Fault relay de-energised when landline path has failed
1 Line Fault relay energised when landline path has failed

5G GSM STU

0 Line Fault relay de-energised when both landline and GSM paths have failed
1 Line Fault relay energised when both landline and GSM paths have failed
2 As 0, but Line Fault output (SK2 pin 15) inverted
3 As 1, but Line Fault output (SK2 pin 15) inverted
4 As 0, but Comms Fail output (SK1 pin 7) inverted
5 As 1, but Comms Fail output (SK1 pin 7) inverted
6 As 0, but Line Fault output (SK2 pin 15) and Comms Fail output (SK1 pin 7) inverted
7 As 1, but Line Fault output (SK2 pin 15) and Comms Fail output (SK1 pin 7) inverted

Once the F2 value has been configured, the **MODE** button returns to the main menu.

F3 Function 3 – Telephone line connection type & low tone levels

Pressing set at the F3 menu option allows the Function 3 value to be configured.
At factory default the F3 digit is set to 0.

The function 3 (F3) specifies the type of telephone line to which the STU is connected: either Public Switched Telephone Network (PSTN) or Private Wire (PW) and the attenuation to be applied to low-tone.

The type of telephone line specified affects the method used by the STU to detect line faults, and the attenuation level affects the amplitude of low-tone output when the line is detected as being on or off-hook.

Connection Type	On-hook	Off-hook
0 PSTN	0 dB	-3 dB
1 PW	0 dB	0 dB
2 PSTN	0 dB	0 dB
3 PSTN	0 dB	-6 dB
4 PSTN	0 dB	-9 dB
5 PSTN	-3 dB	-3 dB
6 PSTN	-3 dB	-6 dB
7 PSTN	-3 dB	-9 dB

Connection Type	On-hook	Off-hook
8 PSTN	-6 dB	-6 dB
9 PSTN	-6 dB	-9 dB
A PSTN	-9 dB	-9 dB
B PSTN	-9 dB	-9 dB
C PSTN	-9 dB	-9 dB
D PW	-3 dB	-3 dB
E PW	-6 dB	-6 dB
F PW	-9 dB	-9 dB

Tip: Connection type 0 will satisfy most PSTN installations, but types 2, 3 & 4 can be useful to address some polling over speech (POS) faults caused by some phone type compatibility issues. The Redcare helpdesk should be consulted for further advice.

Note: PW = Private Wire (private Circuit) connection. This connection type is only available for specialised applications.

Once the F2 value has been configured, the MODE button returns to the main menu.

F4 Function 4 – Line monitoring Enable

Pressing set at the F4 menu option allows the Function 4 value to be configured.
At factory default the F4 digit is set to 1.

0 = Disable line monitoring
1 = Enable line monitoring (PSTN voltage and 20 minute forced poll on hook)
2 = Enable line monitoring (PSTN earth calling mode, 2 minute 20 sec forced poll on hook)
3 = Enable line monitoring (PSTN voltage only)

Tip:
Type 1 will suit the majority of installations (Default)
Type 2 is for Earth calling PSTN lines that may be associated with large older type PABX's
Type 3 can be used where false disconnection of Redcare MCD is to be avoided after long duration (>20min) telephone calls

Line Type F3	Line Monitoring F4	Line Voltage Low <4V	Line Voltage medium Off hook 4V-37V	Line VoltageHigh On Hook >37V	Voltage Check (LF if <4V)
PSTN	0	–	–	–	
PSTN	1	–	–	Slow	Yes
PSTN	2	Fast	–	–	
PSTN	3	–	–	–	Yes
PW	0	–	–	–	
PW	1	Fast	Fast	Fast	
PW	2	Fast	Fast	Fast	
PW	3	Fast	Fast	Fast	

Fast = 2 minute 20s communication check.
Slow = 20 minute communications check

Once the F2 value has been configured, the **MODE** button returns to the main menu.

F5 Function 5 – Pin / serial data enable

Pressing set at the F5 menu option allows the Function 5 value to be configured.
At factory default the F5 digit is set to 0.

Tip: The Serial alarm input is for future use and not to be used on 5G STU at this time.
All 5G STU's should use the 0 setting only.

Options Digit	Debug Commands	Serial Echo	Parallel Alarm Inputs	Serial Alarm Inputs	Data Packets
0	✓	✓	✓		
1				✓	✓
E	✓	✓	✓	✓	✓

F6 Function 6 – GSM enable (5G GSM STU only)

Pressing set at the F6 menu option allows the Function 6 value to be configured. At factory default the F6 digit is set to 1.

0	**GSM path disabled**
1	**GSM path enabled**
2-F	**Reserved**

F7 Function 7 – Line Fault output for GSM. (5G GSM STU only)

factory default

0	**LF relay on both PSTN AND GSM paths failed**
1	**LF relay on either PSTN OR GSM paths failed**
2	**LF relay on PSTN path fail only**
3	**BSIA (Form 175)** **LF relay on either path fail with ATS "SINGLE / ALL" identification. And ATS test 10/11**
4	Reserved
5	Reserved
6	**LF relay on PSTN fail, RPS relay on GSM fail**
7	Reserved
8	Reserved
9	Reserved
A	**LF relay on PSTN fail, CTRL relay on GSM fail**
B	Reserved
C	Reserved
D	Reserved
E	Reserved
F	Reserved

Note: When F7=3 then pins 10 & 11 are used as path test alarms and cannot be used as alarm inputs.

F8 Function 8 – AC fail delay

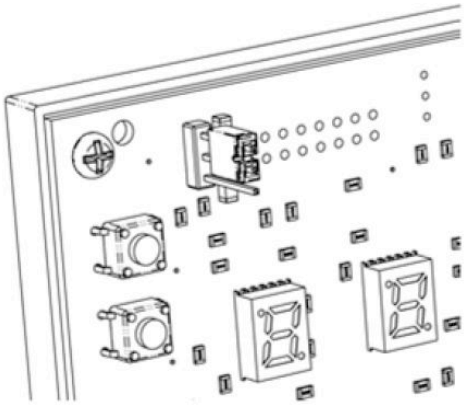
Pressing set at the F8 menu option allows the Function 8 value to be configured. At factory default the F8 digit is set to 1.

0	No delay on AC fail input (F)
1	15 minute +/- 5 minute delay on AC Fail input (F)

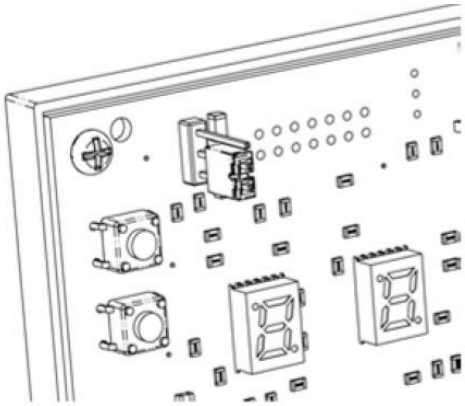
Input pin learn mode

While the 5G STU is in the fully de-commissioned state the polarity of the inputs can be learnt as follows:

- Ensure the display is showing NC (Not commissioned).
- Arrange the inputs so that they are all in their Non Alarm state as required.
- Note if the GSM STU is plugged on to a panel then care should be taken not to connect additional voltage states to the inputs as panel damage may result.
- Once all inputs are set to the normal state, Short out the the Sec pins for 2 seconds, and then short out the Lrn pins until Pr is briefly displayed. (<6 secs)
- The inputs are now learnt with the required polarity.



Security Position



"Learn" Position

Alternatively menu PP can be accessed to invert any inputs as required.

GSM STU pin 8

Pin 8 on the GSM STU is reserved for signalling low signal strength alarms.

A Signal strength which drops below 5 for a duration of 50secs will trigger a 3 mins timeout before a pin 8 alarm is activated (and LF relay operates).

If the Signal strength is 5 or more for greater than 50secs during the final 3 min timeout then the timeout will be reset and pin 8 will not be activated.

After pin 8 is activated, a signal strength of 5 or more for greater than 50 secs will restore pin 8 condition and LF relay.

Occassionally the display may show SS 99 = This indicates that the GSM module can't determine the real value for Signal Strength eg, because it's transmitting or busy.
If this indication persists for longer than 50 secs it will be treated as a Signal Strength less than 5.

Upping the STU

Once the STU is connected to the telephone line and powered up, the STU must be upped from ARC. Note: on the GSM STU, wait till the STU is registered with the wireless network before upping. i.e. wait till the display shows SS > 00. This generally takes about 45 seconds following power up. Failure to wait for the STU to register with the GSM network will result in the wireless path not commissioning.

Checking that the STU is commissioned

When the 5G STU is correctly commissioned on the PSTN path the dot on the left hand display will flash every 5 seconds. This denotes that commissioning over the PSTN path has been successful. When the 5G GSM STU is correctly commissioned over the GSM path the dot on the right hand display will flash every 5 seconds. This denotes that commissioning over the GSM path has been successful. Additionally the dots will flutter each time a data poll is received over that path.

Downing the STU

The Down STU command can be issued from the ARC. For all 5G STU's, this disables the port on the Redcare Scanner at the telephone exchange. If the 5G GSM STU is contactable by the wireless path, the STU will be fully de-commissioned and caused to reset and reboot. The 5G GSM STU's display will revert to NC (Not Commissioned).

AC Fail (F)

The input marked F on the STU is intended for AC fail. This can be connected to the AC fail output on the alarm panel if required. By default the STU has a 15 minute +/- 5 minute delay on sending the pin 13 alarm when F is triggered. Similarly there is a 15 min +/- 5 min delay on the pin 13 restore.

The 15 min +/-5min delay can be removed by reconfiguring F8 menu to = 0 (No delay). This is useful where the alarm panel already has its own built in AC fail delay.

Note: When the 15 minute timer is implemented, triggering the F input will display AL-F on the display immediately, but the pin 13 alarm is only sent after the delay timeout.
Once the pin 13 alarm has been sent, then restoring the pin F input will remain as showing AL-F on the display until the 15min timeout has expired and the pin 13 restore has been sent and acknowledged. (re-triggering F during the 15 min restore timer will simply result in the 15 min timer being cancled, and restarted on the next F restore).

Tamper (T)

The input marked T on the STU is intended for tamper. This can be connected to a tamper output on the alarm panel if required.
The tamper alarm is signalled as pin 12.
If agreed with the ARC, the T input can be used as another general 12th alarm pin.

MCD compatibility

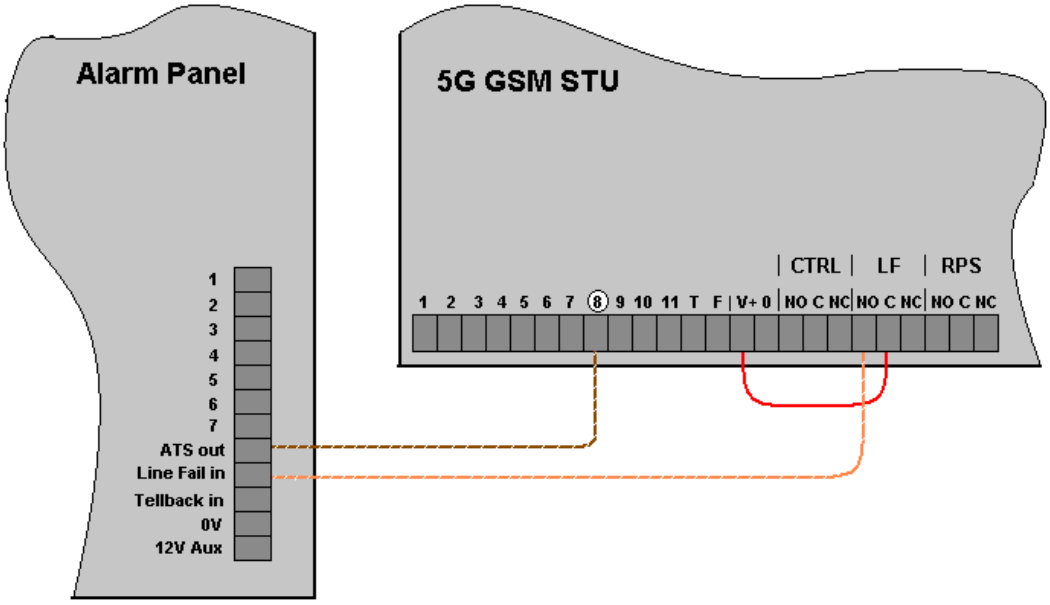
When the STU is installed on a telephone line that shares other analogue data products, e.g Fax machine, analogue modem or EPOS machine, then it is recommended that a Redcare Modem Compatibility device (MCD) is used. The MCD is a line powered plug-in device that connects in line with the modem of fax machine. The MCD ensures that the redcare signalling does not interfere with the modem, and the modem signals do not interfere with the redcare signalling

The MCD will cause the modem to be disconnected from the line if the STU has an alarm message to send. Where an MCD is being used, then the STU should be configured to MCD compatibility mode F4 = 3. This ensures that the STU's regular communication checks do not cause false triggering of the MCD.

BSIA (form 175) mode (5G GSM STU)

This mode allows the alarm panel to determine whether a single or dual path failure has occurred on the GSM STU. This is the default mode of the STU, F7=3.

Where an EN compliant panel supports this function, connect the panels ATS output to the STU's ATS input (pin 8), and connect the STU's LF relay to the line fault input on the panel.



BSIA Form 175 wiring ensures panel detects Single / Dual path failure

To test the BSIA functionality:

- Disconnect the PSTN from the STU.
- The alarm panel display should show "Comms Fail SINGLE" within 1 minute.
- Then disconnect the GSM aerial.
- The alarm panel display should show "Comms Fail ALL" within 2 minutes.
- Reconnect the PSTN and Aerial to the STU and the comms fail message should clear from the panels display within 3 minutes.

When in BSIA mode F7=3 then triggering the ATS input to the STU (pin 8), while both paths are registered as working OK, will result in a pin 10 path test alarm being transmitted over GSM and a pin 11 path test alarm transmitted over PSTN.
Similarly pin 10 & 11 restores will be signalled when the STU's ATS input (pin 8) is restored.

Common problems

STU constantly shows AL –F on the display

The STU must have at least 15 mins +/- 5 mins of uninterrupted restore condition on input F to clear the pin 13 AC Fail alarm.

STU does not show AL-00

The STU will only display AL-00 when all inputs are in the restored state and all outstanding alarms have been acknowledged. On many panels it is normal to have at least pin 4 in the alarm state during day service, so the display will cycle AL-4 and not show AL-00.

5G GSM STU fails to UP on GSM path

If the GSM STU fails to up on the GSM path it should be totally powered down and then re-powered. Wait for 45s until a valid signal strength is showing (SS = 12-31) and then request fo the STU to be upped. If the STU still fails to up on the GSM path then contact the redcare helpdesk to check that the SIM card is correctly enabled, and the redcare account is built correctly.

5G STU fails to up on PSTN path

Check that redcare chirps are present at the STU line terminals when the UP command is sent. Check that 50V line voltage is present at the STU line terminals.
If the STU still fails to UP then contact the redcare helpdesk for further checks.

Polling over Speech

If the customer reports abnormal amounts of redcare chirps on the telephone line during calls then in some instances reconfiguring the STU to F3=3 may help. Alternatively contact the redcare helpdesk for further advice.

Panel permanently shows comms fail when a 5G GSM STU is used in plug-on mode

A small number of alarm panels may have the Comms Fail (7) or Line Fault (15) connections inverted on the plug on Molex pins. Where this is the case use the alternative settings on the STU's F2 menu to correct this.

Support

Redcare Helpdesk 0800 671 240.

Glossary of terms

21CN	21st Century Network (BT's upgrade of telephone exchange technology)
3G STU	3rd Generation Subscribers Terminal Unit
5G STU	5th Generation Subscribers Terminal Unit
AC	Alternating Current
ADSL	Asymmetric Digital Subscribers Line
ARC	Alarm Receiving Centre
BSIA	British Security Industry Association (UK Trade Association)
BT	British Telecommunication PLC
BT92A	Block Terminal 92A (Redcare specific connection point)
EPOS	Electronic Point of Sale machine (Credit card reader etc)
ESD	Electro Static Discharge
Form 175	BSIA document specifying dual path alarm signalling criteria
GSM	Global System for Mobile communications (Groupe Spécial Mobile)
LED	Light Emmitting Diode
MC	Modem Compatibility Device (Redcare specific)
MMCX	Micro Minature Coaxial Connector
NO C NC	Normally Open, Common, Normally Closed (Relay contact designations)
Polling	Message interchange
PSTN	Public Switched Telephone Network
PW	Private Wire (also Private Circuit) a point to point communications line
REN	Ringer Equivalence Number
RF	Radio Frequency
SELV	Safety Extra Low Voltage
STU	Subscribers Terminal Unit (A Redcare Alarm communicator)
TNV	Telephone Network Voltage
UP STU	The process of bringing a STU into service (Commissioning).

Offices worldwide

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